

Appendix B-6

Airport Ground Operations WIST Needs Template

Sector Activities for Airport Ground Operations

Aircraft movement. Includes all ground movement of aircraft and safety of flight considerations that affect aircraft ground movement.

Vehicle movement. Vehicle movement and traffic flow on the airfield and on approaches to the airfield

Gate accessibility. Includes operations for the transfer of baggage and cargo and general aircraft servicing (cleaning, catering, minor maintenance) while an aircraft is parked at a gate.

Aircraft maintenance. All ground maintenance conducted away from the gate.

Refueling aircraft. Includes transportation of fuels from at-airport storage to aircraft and the operations during transfer from fuel truck to aircraft fuel tanks.

Foot traffic. All pedestrian movement on the airfield.

Construction and maintenance projects. All vehicular movement and operations related to construction or structural maintenance of airport and airfield facilities, while the airport continues to operate.

Weather Needs for Airport Ground Operations

Weather Element	Threshold	Activity	Impacts	Action	Lead Time
Frozen Precipitation (snow, inches)	>1/2 inch per hour	Aircraft movement, vehicle movement, gate accessibility, foot traffic, aircraft maintenance	Personnel safety risk, equipment damage risk, operational delays and cancellations, potential runway closure (biggest impact on intersecting runways), parking limitations, airport access road conditions (Heavy snow coupled with high winds will cause blizzard conditions and "white-outs." All snow removal ceases until visibility improves.)	Conduct early planning to ensure availability/readiness of equipment and supplies (stockpile of salt/sand for roadways and parking areas, other materials for runways and taxiways). Plan manpower availability. Advise carriers, Fixed Base Operator, and all tenants. Prepare de-icing pads for expected use. (Some airlines use a 24-30 hour forecast for a preliminary staffing estimate.)	12-24 hours (advisory)
				Implement personnel recall, go to 12-hour shifts. Decide on choice of application (anti-ice, sand, etc.). Airlines may implement schedule changes and plan reconstitution. Issue advisories (and updates) to all airport tenants. Execute snow and ice control plan(s), airlines could begin de-icing aircraft at the gate with activation of the snow plan. Form the snow desk/snow removal team, issue NOTAMS, track expected storm duration and accumulation. Issue and update advisories and plan activities accordingly. Begin treating runways, taxiways, roads, parking areas, and walkways. Monitor pavement subsurface and surface temperatures for continued snow removal strategy. Alert staff to the potential for white-out conditions.	3-6 hours (warning)
Freezing Precipitation (all ice forms)	Any	Aircraft movement, vehicle movement, gate accessibility, foot traffic, aircraft maintenance	Personnel safety risk, equipment damage risk, operational delays/cancellations, potential runway closure, airport parking limitations, decreased traction/maneuverability on airport access roads	Conduct early planning for availability/readiness of equipment and supplies (stockpile of anti-ice and de-ice materials). Plan manpower availability, ready designated aircraft de-icing pads. Advise carriers, Fixed Base Operator, and all tenants.	12-24 hours (advisory)
				Implement personnel recall, go to 12-hr shifts (the choice of 8 or 12 hour shifts is driven by manpower availability). Decide on choice of anti-ice/de-ice application material, and start time (timing is critical to derive the greatest benefit/effectiveness from material applied). Airlines could implement flight schedule changes and plan reconstitution. Issue advisories (and updates) to all tenants, execute snow and ice control plan(s) (with temperature below 34° F and high humidity, airlines could begin de-icing at the gate). Issue NOTAMS, track storm onset and expected duration. Begin treating runways, taxiways, roads, parking areas, and walkways. Monitor pavement subsurface and surface temperatures for strategy to remove freezing precipitation.	3-6 hours (warning)
Freezing Precipitation (ice, inches) *Note: This section treats aircraft de-icing as responsibility of the airline/pilot-in-command.	Any	Safety of flight	Safety risk, equipment damage risk, schedule delays and cancellations (Frozen precipitation of any kind, along with frost and rime icing picked up on descent, affects the aerodynamic performance features of an aircraft. Lift is dramatically affected and is most critical on take-off/climb-out. "Hold-over-time," the maximum allowable time between the start of de-icing and actual take-off, varies with the weather conditions and the type of de-icing fluid used. The proper selection must be made for effectiveness, efficiency, and above all, safety. Efficient de-icing operations minimize schedule impacts.)	Airline meteorology/operations/dispatch function advises station managers of potential threat. Station de-icing coordinator, or "iceman," plans for availability/readiness of equipment, supplies, and manpower. Airport operations alerts tenants and prepares de-icing pads for expected use. Airport continues to issue advisories to tenants on type of precipitation expected, expected accumulation and duration, temperature, and wind.	12-24 hours (advisory)
				Use the latest forecast (type and rate of precipitation, wind, and temperature) to select the de-icing material with the greatest effectiveness. (Airlines may implement personnel recall to cover the additional function of de-icing in turning airplanes.) Begin applying de-icing fluid before precipitation begins. This agent prevents precipitation from bonding (freezing) to the wing surface; at take-off roll, the accumulated precipitation slides off the wing. Other agents can be applied to remove frozen precipitation from aircraft surfaces. Frost and "cold wing" icing are routinely dealt with when freezing precipitation is not present. Note: If rate of freezing precipitation is moderate or greater in current observation, operations will likely stop at a station.	3-6 hours (warning)

Weather Needs for Airport Ground Operations

Weather Element	Threshold	Activity	Impacts	Action	Lead Time
Thunderstorms with Lightning, including Microburst Event	Within 3, 5, 17 nautical miles of the airfield	Refueling aircraft, construction and maintenance projects, general aircraft servicing (cleaning, catering, minor maintenance), baggage/cargo transfer	Personnel safety risk, equipment damage risk, operational delays/cancellations, summer construction projects delayed, airfield maintenance projects delayed, aircraft servicing (refueling, maintenance) delayed	Airlines advise station managers of impending threat of lightning; airport operations advises all tenants. Plan options for construction and maintenance projects.	12-24 hours (advisory)
				Continue issuing advisories to all airfield tenants. Begin movement of construction equipment. Hangar or tie-down equipment that is not in use or not needed in short term. Monitor lightning observation grid. Begin shutting down noncritical activities when lightning is observed at or near outer boundaries of lightning detection grid.	4-6 hours (warning)
				Halt all refueling when lightning is observed within 3 nautical miles of the airfield, get personnel inside and under cover. Note: Some operators pull their personnel off the line when lightning is observed at or within 10 nautical miles of the airfield.	0-1 hour (nowcast)
Thunderstorms with Hail	Within 5 nautical miles of airfield	Refueling aircraft, construction and maintenance projects, general aircraft servicing (cleaning, catering, minor maintenance), baggage/cargo transfer	Personnel safety risk, equipment damage risk, operational delays/cancellations, summer construction projects delayed, aircraft servicing (refueling, maintenance) delayed (Hail greater than 1 inch can severely damage aircraft not in flight.)	Airlines advise station managers of impending threat of hail; airport operations advises all tenants. Plan options for construction and maintenance projects.	12-24 hours (advisory)
				Continue issuing advisories to all airfield tenants. Begin moving construction equipment. Hangar or tie-down equipment that is not in use or not needed in short term. Begin shutting down all noncritical activities when hail is observed within 5-10 nautical miles of the airfield. Hangar aircraft.	4-6 hours (warning)
				When hail is observed within 3 nautical miles of airfield, halt all refueling. Get personnel inside and under cover. Note: Some operators pull their people off the line when hail is observed at or within 10 nautical miles of the airfield.	0-1 hour (nowcast)
Wind Speed and Direction, including Microburst Event (knots)	>25-35 knots	Construction projects, aircraft movement, aircraft servicing (cleaning, catering), baggage/cargo transfer	Construction materials blow loose, increased incidence of foreign objects present in aircraft movement areas, maintenance at high locations on large aircraft impeded/slowed, delays in turning aircraft and runway changes contribute to schedule delays, snow removal and de-icing operations affected (Crosswind factors and dramatic wind shifts affect choice of runway. Runway changes at busy times contribute to schedule delays. Snow blower and aircraft de-icing operations must consider wind direction and speed. Blowing dust from construction sites presents a hazard.)	Advise construction contractor and maintenance of impending high winds. Examine options for construction schedule adjustments. Advise all airfield tenants, advise air traffic control. Plan for more frequent ramp, taxiway, and runway inspections (to reduce or eliminate foreign object damage).	12-24 hours (advisory)
				If de-icing of aircraft is required, decide where and how it will be done, to control blowing spray. Select pattern for snow removal operation. Continue advisories to tenants. Begin increased ramp, taxiway, and runway inspections. Ensure that motorized carts, igloo containers, baggage, etc., that are not in use are braked and chocked for the duration of high winds. Inspect aircraft movement areas frequently for foreign objects (to prevent foreign object damage). Store equipment that is not needed in protected areas.	4-6 hours (warning)
Temperature and Chill Factor (degrees F) (counts as 2 weather elements)	<0° F (with or without wind) or wind chill factor of <-20° F	Construction projects, aircraft servicing (cleaning, catering, minor maintenance), baggage and cargo transfer, routine refueling	Personnel exposure (hypothermia, frost bite), water onboard aircraft may freeze during routine servicing, minor delays in turning aircraft because servicing personnel are limited in time they can spend outside, personnel safety procedures strictly enforced (buddy system required, time outside is limited and actively managed)	Training for dealing with extremely cold conditions begins in September. Assure all personnel are equipped with appropriate clothing and other cold weather gear when reporting for work (two-way radios, cell phones, foot and hand coverings, etc.). Airlines alert station managers, airports alert all tenants. Plan how much and what kind of construction/repair might be possible, adjust schedule. Use easy-to-follow checklists to ensure no protection or safety detail is overlooked.	12-24 hours (advisory)
				Limit personnel time outside to periods of 12-15 minutes. Increase available manpower to account for time when part of the shift crew must take warm-up breaks inside. Insist that ground crews come to work with appropriate cold weather attire and other gear. Provide ground crew with warm fluids (tea, coffee, soup, etc.) to assist warm up and avoid dehydration.	3-6 hours (warning)

Weather Needs for Airport Ground Operations

Weather Element	Threshold	Activity	Impacts	Action	Lead Time
Heavy Rain	>1-2 inches per hour (produces standing water on tarmac)	Construction projects, aircraft movement, aircraft servicing, vehicle/traffic flow on airfield and approach to the airfield	Construction projects impeded, slowing of all vehicular movement on the airfield (both on the ramp and on access roads/parking areas), foot traffic impeded, safety risk for employees and passengers, schedule delays possible	Issue an advisory to all airlines and all other airfield tenants. Plan vehicular traffic flow to bypass known trouble areas. As appropriate, coordinate with other agencies in the vicinity to open drainage control points. Prepare equipment for sweeping or pushing standing water. Plan to have adequate equipment and trained personnel available	12-24 hours (advisory)
				Prepare to execute the plan for heavy rain mitigation.	2 hours (warning)
Visibility: Any Obstruction to Vision, Primarily Fog (statute miles)	<1/4 mile	Construction projects (many at night, at non-peak air traffic hours, but at peak fog occurrence times), aircraft movement, vehicular movement	Potential delays to completion of construction and repair projects; increased probability for incursion incidents; all aircraft and vehicular movement slowed, with attendant schedule delays	Coordinate with construction contractor on schedule of events. Issue advisory to all airport tenants. Ensure that "Follow me" trucks are available for service.	24 hours (advisory)
				Coordinate with air traffic control. At some airports, when the Runway Visual Range reaches 600 ft, no take-offs are allowed. Ensure that "Follow me" guidance vehicles are available on request	6-12 hours (warning forecast)